

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : **ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDs**
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Mark E. Thompson, hereby declare and state as follows:

1. I, along with Peter Djurovich, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March 23, 1999), U.S.

COPIES
MAILED
JUN 20 2001

patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter disclosed in U.S. patent application no. 09/274,609 (filed on March 23, 1999), and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, and 141. This subject matter was originally conceived by us prior to March 21, 1999.

3. I, along with Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 135-139. This subject matter was originally conceived by us prior to March 21, 1999.

4. I, along with Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 104 and 105.

5. I, along with Peter Djurovich, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

6. I am a co-author of the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

7. The subject matter disclosed in the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999 (Exhibit B), originated from the original conception, by myself, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, 135-139 and 141. Thus, to the extent that any subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, 135-139 and 141 is disclosed in or suggested by the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999 (Exhibit B), this subject matter was originally conceived by myself, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo prior to March 21, 1999.

8. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Peter Djurovich, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

9. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that

the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/883,734.

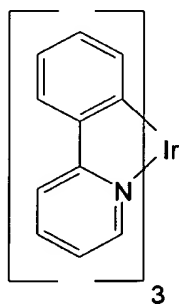
Date: September 26, 2003

Mark E. Thompson
Mark E. Thompson

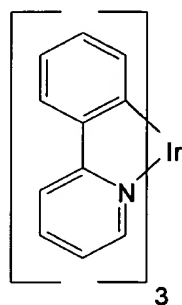
EXHIBIT A

Currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001)

92. An organic light emitting device comprising an anode, a cathode and an emissive layer, wherein the emissive layer is located between the anode and the cathode and the emissive layer comprises a phosphorescent organometallic compound, wherein the phosphorescent organometallic compound is an iridium compound including a carbon-metal bond.
93. The organic light emitting device of claim 92, wherein the iridium compound is a cyclometallated iridium compound.
94. The organic light emitting device of claim 92, wherein the iridium compound is fac-tris(2-phenylpyridine) iridium, as denoted by the formula:



98. The organic light emitting device of claim 92, wherein the phosphorescent organometallic compound is a cyclometallated compound including a cycle closed with at least one metal-X bond, wherein X is selected from the group consisting of nitrogen, sulfur, phosphorous, arsenic and oxygen.
100. An organic light emitting device comprising an anode, a cathode and an emissive layer, wherein the emissive layer is located between the anode and the cathode, and the emissive layer comprises a host material and a phosphorescent organometallic compound present as a dopant in said host material, wherein the phosphorescent organometallic compound includes a carbon-metal bond.
101. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is an iridium compound.
102. The organic light emitting device of claim 101, wherein the iridium compound is a cyclometallated iridium compound.
103. The organic light emitting device of claim 101, wherein the iridium compound is fac-tris(2-phenylpyridine) iridium, as denoted by the formula:



104. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is an osmium compound.
105. The organic light emitting device of claim 104, wherein the osmium compound is a cyclometallated osmium compound.
106. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is a platinum compound.
107. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is a cyclometallated compound including a cycle closed with at least one metal-X bond, wherein X is selected from the group consisting of nitrogen, sulfur, phosphorous, arsenic and oxygen.
108. The organic light emitting device of claim 107, wherein the phosphorescent organometallic compound is a cyclometallated platinum compound.
109. The organic light emitting device of claim 100, wherein the host material is a polymeric host material.
110. The organic light emitting device of claim 109, wherein the polymeric host material is a polyvinylcarbazole.
111. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is substituted with an electron donor group.

112. The organic light emitting device of claim 100, wherein the phosphorescent organometallic compound is substituted with an electron acceptor group.
135. An organic light emitting device comprising an anode, a cathode and an emissive layer, wherein the emissive layer is located between the anode and the cathode and the emissive layer comprises a phosphorescent organometallic compound, wherein the phosphorescent organometallic compound is a cyclometallated compound including a carbon-metal bond.
136. The organic light emitting device of claim 135, wherein the cyclometallated compound is a platinum compound.
137. The organic light emitting device of claim 135, wherein the cyclometallated compound further includes a cycle closed with at least one metal-X bond, wherein X is selected from the group consisting of nitrogen, sulfur, phosphorous, arsenic and oxygen.
138. The organic light emitting device of claim 137, wherein the cyclometallated compound is a platinum compound.
139. The organic light emitting device of claim 137, wherein X is nitrogen.
140. The organic light emitting device of claim 98, wherein X is nitrogen.
141. The organic light emitting device of claim 107, wherein X is nitrogen.

EXHIBIT B

ings of the
ociety

Location

New Orleans, LA
San Francisco, CA
Washington, DC
San Diego, CA
Chicago, IL
Orlando, FL
Boston, MA
New Orleans, LA
New York, NY
Anaheim, CA
Philadelphia, PA
San Diego, CA
Washington, DC
Atlanta, GA
San Francisco, CA
Chicago, IL
Boston, MA
San Antonio, TX
Philadelphia, PA

ABSTRACTS OF PAPERS

Part 1

217th ACS National Meeting
0-8412-3672-0

American Chemical Society

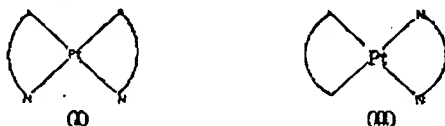
Anaheim, CA

March 21-25, 1999

541.

OPTICAL PROPERTIES OF Pt (II) CYCLOMETALATED COMPLEXES IN POLYMER MATRICES. PREPARATION AND POTENTIAL USES IN OLEDs. Sergey Lamansky, Mark E. Thompson, Department of Chemistry, University of Southern California, Los Angeles, CA 90089

Several Pt (II) bis-cyclometalated complexes of the types (I) and (II) were synthesized (examples of C,N-, C,C-, and N,N-type ligands are 2-phenylpyridyl, 2,2'-biphenyl and 2,2'-bipyridyl, respectively). Their absorption and emission characteristics were tested both in solution and solid matrices, including polymer matrices. Energy transfer to the complexes from polymeric hosts, such as poly (vinyl carbazole), was investigated. Potential applications of the materials in organic light emitting diodes will be discussed.



542.

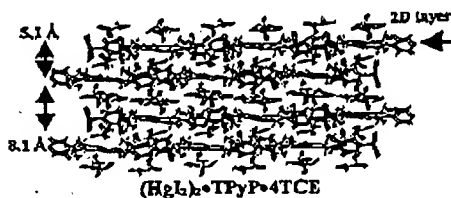
HYDROGEN-BONDED SUPRAMOLECULAR ASSEMBLY OF TETRAPYRIDYLPORPHYRINS ON A GOLD SURFACE. Grant A. Broker, C. V. Krishnamohan Sharma, Brian T. Pyevich, Jason A. Swenson, Gregory J. Szulcowski, and Robin D. Rogers, Department of Chemistry, The University of Alabama, Tuscaloosa, AL 35487

The design of novel functional materials has becoming increasingly important in the areas of material science, nanotechnology, and surface science. In this regard, we found that organization of porphyrinic chromophores on a surface through hydrogen-bonds provides a powerful means for the design of novel complexes with useful functional properties. Acid/alcohol-terminated self assembled monolayers were constructed by immersion of thin gold surfaces in 1 mmol methanolic mercaptal acid/alcohol solutions and then immersion in 0.1 mmol chloroformic solutions of TPyP. The acid terminated surfaces readily hydrogen-bond with tetrapyridylporphyrin. This presentation will discuss the characterization of these self-assembled, hydrogen-bonded layers of porphyrins through the use of XPS, ellipsometry, and reflection IR. Model crystal structures of hydrogen bonded TPyP complexes will also be presented.

543.

INCLUSION PROPERTIES OF CRYSTAL ENGINEERED TETRAPYRIDYLPORPHYRIN COORDINATION COMPLEXES. Grant A. Broker, C. V. Krishnamohan Sharma, and Robin D. Rogers, Department of Chemistry, The University of Alabama, Tuscaloosa, AL 35487

Tetrapyridylporphyrin (TPyP) has been used to construct porous 1D and 2D networks using coordinating metal halides. The 1:2 complexes of TPyP and HgX_2 ($X=I, Br$), form porous 1D coordination polymers (cavity size, $2.5 \times 7.7 \text{ \AA}$). The shape and mode of aggregation of 1D polymers leads to the formation of 2D layers with a second type of cavity (cavity size, $2.4 \times 3.0 \text{ \AA}$). However, both the cavities in these complexes are capped by solvent molecules and form a bilayer architecture. This presentation will discuss the inclusion properties of these networks with chlorinated solvents.



544.

COMPARATIVE ANALYSIS OF POLYMER MATRICES. LaTarsha D. Jones, Department of Chemistry, Zhihong Chen, Roche Carolina Inc., Carolina 29506-9330

Analyzing mixtures of polymorphs is imperative in determining the best method for optimal chemical and formulation issues for producing consistent solid dosage forms. The polymorphism of a drug that is being developed is an analytical technique, such as X-Ray, Differential Scanning Calorimetry (DSC), and other methods for quantitatively determining the polymorphs.

545. HIGH FIELD EPR MEASUREMENTS OF IRON PROTEINS. J. Knapp, J. Krzystek, L.-C. Brunel, Biochemistry-0558, University of California, Interdisciplinary Magnetic Resonance Laboratory, Tallahassee, Florida 32310

The electronic structures of electron transfer affect both reorganization energy and the reduced (Fe^{2+}) form is EPR "silent" (0 - 14 T) and high frequencies (100 - 1000 T) of rubredoxin, that reveal considerable information about the protein environment.

Another class of iron proteins is the high-spin $[Fe(OH)(trien)]^{2+}$ fragments found in $[Fe_4S_4]^{n+}$ cubane clusters of this $S=9/2$ system, permitting the study of iron-sulfur clusters.

546. SYNTHESIS AND CHARACTERIZATION OF PALLADIUM(II) COMPLEXES ON PD THIN FILMS. Y.-L. Tung, V. National Tsing Hua University, Taiwan

Treatment of β -ketoinimides with volatile, air stable allyl(β -ketoinimide) complexes are characterized by their physical properties and elemental analyses. The rotation of planar allyl ligand and the process involving transient form of the physical properties is achieved. Some derivative complexes are formed on Pd thin films by chemical vapor deposition.

General Search Results--Full Record

Article 12 of 13

[MARK](#)[PREVIOUS](#)[NEXT](#)[SUMMARY](#)[CSE](#)

Optical properties of Pt (II) cyclometalated complexes in polymer matrices. Preparation and potential uses in OLEDs.

Lamansky S, Thompson ME

ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY

217: 541-INOR Part 1 MAR 21 1999

Document type: Meeting
Abstract

Language: English

Cited
References: 0

Times
Cited: 0

Addresses:

Univ So Calif, Dept Chem, Los Angeles, CA 90089 USA

Publisher:

AMER CHEMICAL SOC, WASHINGTON

IDS Number:

176JN

ISSN:

0065-7727

Article 12 of 13

[PREVIOUS](#)[NEXT](#)[SUMMARY](#)

Acceptable Use Policy

Copyright © 2003 Thomson ISI



Instructions

Basic Search

Advanced Search

Feedback

Your search Event Type: Oral Abstract Title keyword(s): **pt** yielded **8** hits, displaying items 1 through 8.

[\[Printer Friendly Version\]](#)

Meeting	Date	Location	Title (Presentation Type)
217th ACS National Meeting (Anaheim, Spring Sun 1999)/INOR /	03/21/1999 9:40 AM	Marriott Grand Ballroom A/B	Paper 28 : (Oral) Double silylation reaction of MSi_2P_2 complexes ($M = Ni$, Pd , Pt). J. Ko , Y. Kang , S. O. Kang
Distinguished Service Award Symposium			
217th ACS National Meeting Sun (Anaheim, Spring 1999)/INOR /	03/21/1999 12:00 EVE	Convention Center Hall C	Paper 81 : (Poster) Synthesis of a pteridine monosubstituted zinc phthalocyanine. D. J. R. Brook , G. P. Harp
Poster Session			
217th ACS National Meeting Mon (Anaheim, Spring 1999)/INOR /	03/22/1999 2:30 PM	Marriott Orange County 4/5	Paper 349 : (Oral) Oxidative addition and reductive elimination reactions at Pt (II)- $Pt(IV)$. K. I. Goldberg
Activation			
217th ACS National Meeting Tue (Anaheim, Spring 1999)/INOR /	03/23/1999 10:30 AM	Marriott Orange County 4/5	Paper 392 : (Oral) Oxo-gate hypothesis in the pterin-containing Mo enzymes. M. L. Kirk
General Bioinorganic			

Chemistry
217th ACS

National Meeting Tue
(Anaheim, Spring 03/23/1999
1999)/INOR / CH 3:30 PM

Marriott
Orange County
4/5

Paper 435 : (Oral) Density functional
theory studies of C-H activation in Os(II)
and Pt(II) cationic complexes. **R. L.
Martin**, P. J. Hay

Activation

217th ACS

National Meeting Tue
(Anaheim, Spring 03/23/1999
1999)/INOR / 12:00 EVE A1

Convention
Center
A1

Paper 541 : (Poster) Optical properties
of Pt(II)-cyclometalated complexes in
polymer matrices: Preparation and
potential uses in OLEDs. **S.
Lamansky**, M. E. Thompson

Solid-
State/Materials

217th ACS

National Meeting

(Anaheim, Spring Thu
1999)/INOR / 03/25/1999
General 3:10 PM

Marriott
Grand Ballroom
A/B

Paper 689 : (Oral) Direct observation
of carbon-oxygen reductive elimination
from Pt(IV) centers. **B. S. Williams**, K.
I. Goldberg

Organometallic
Chemistry

217th ACS

National Meeting Thu
(Anaheim, Spring 03/25/1999
1999)/INOR / 3:30 PM

Marriott
Grand Ballroom
A/B

Paper 690 : (Oral) C&¹50;C and
C&¹50;H reductive elimination and β -
hydride elimination from Pt(IV)
complexes. **D. M. Crumpton**, K. I.
Goldberg

Organometallic
Chemistry

[Printer Friendly Version]

[1]

Your search Event Type: Oral Abstract Title keyword(s): pt yielded 8 hits, displaying
items 1 through 8.

Disclaimer: Events subject to change or cancellation.

[Contact Us](#) [About ACS](#) [FAQs](#) [sitemap](#) [login](#)

[Copyright © 2003 American Chemical Society.](#)

[All Rights Reserved.](#)

[Terms of Use](#) | [Privacy Policy](#) | [Feedback](#) | [Au sujet de la ACS](#) |
[Acerca de la ACS](#)

EXHIBIT C

NY01 621252 v 2

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : **ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDs**
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Marc A. Baldo, hereby declare and state as follows:

1. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Paul E. Burrows, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March

23, 1999), U.S. patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Mark E. Thompson, Sergey Lamansky and Stephen R. Forrest, contributed to the conception of the subject matter disclosed in U.S. patent application no. 09/274,609 (filed on March 23, 1999), and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, and 141. This subject matter was originally conceived by us prior to March 21, 1999.

3. I, along with Mark E. Thompson, Sergey Lamansky and Stephen R. Forrest, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 135-139. This subject matter was originally conceived by us prior to March 21, 1999.

4. I, along with Mark E. Thompson, Sergey Lamansky, Stephen R. Forrest and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 104 and 105.

5. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

6. I have read and understood the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

7. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Paul E. Burrows (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

8. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/883,734.

Date: _____

Marc A. Baldo

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDS
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Paul E. Burrows, hereby declare and state as follows:

1. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March

23, 1999), U.S. patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Mark E. Thompson, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 104 and 105.

3. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

4. I have read and understood the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

5. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Stephen R. Forrest and Marc A. Baldo (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

6. I further declare that all statements made herein of my knowledge are true

and that all statements made on information and belief are believed to be true; and further that the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/883,734.

Date: _____

Paul E. Burrows

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : **ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDS**
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Sergey Lamansky, hereby declare and state as follows:

1. I, along with Mark E. Thompson, Peter Djurovich, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March 23, 1999),

U.S. patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Mark E. Thompson, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter disclosed in U.S. patent application no. 09/274,609 (filed on March 23, 1999), and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, and 141. This subject matter was originally conceived by us prior to March 21, 1999.

3. I, along with Mark E. Thompson, Stephen R. Forrest and Marc A. Baldo, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 135-139. This subject matter was originally conceived by us prior to March 21, 1999.

4. I, along with Mark E. Thompson, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 104 and 105.

5. I, along with Mark E. Thompson, Peter Djurovich, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

6. I am a co-author of the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

7. The subject matter disclosed in the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999 (Exhibit B), originated from the original conception, by myself, Mark E. Thompson, Stephen R. Forrest and Marc A. Baldo, of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, 135-139 and 141. Thus, to the extent that any subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, 135-139 and 141 is disclosed in or suggested by the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999 (Exhibit B), this subject matter was originally conceived by myself, Mark E. Thompson, Stephen R. Forrest and Marc A. Baldo prior to March 21, 1999.

8. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Mark E. Thompson, Peter Djurovich, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

9. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that

the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/883,734.

Date: _____

Sergey Lamansky

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : **ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDS**
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Stephen R. Forrest, hereby declare and state as follows:

1. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March 23, 1999),

U.S. patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Mark E. Thompson, Sergey Lamansky and Marc A. Baldo, contributed to the conception of the subject matter disclosed in U.S. patent application no. 09/274,609 (filed on March 23, 1999), and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 100, 106-112, and 141. This subject matter was originally conceived by us prior to March 21, 1999.

3. I, along with Mark E. Thompson, Sergey Lamansky and Marc A. Baldo, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 135-139. This subject matter was originally conceived by us prior to March 21, 1999.

4. I, along with Mark E. Thompson, Sergey Lamansky, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 104 and 105.

5. I, along with Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

6. I have read and understood the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

7. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Mark E. Thompson, Peter Djurovich, Sergey Lamansky, Marc A. Baldo and Paul E. Burrows (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

8. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S. Application Serial No. 09/883,734.

Date: _____

Stephen R. Forrest

PATENT
[10020/15302]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : THOMPSON et al.
U.S. Serial No. : 09/883,734
Filing Date : June 18, 2001
For : **ORGANOMETALLIC COMPLEXES AS
PHOSPHORESCENT EMITTERS IN ORGANIC
LEDs**
Examiner : YAMNITZKY, M. R.
Art Unit : 1774

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: _____

Signature: _____
Thomas F. Meagher (Reg. No. 29,831)

DECLARATION UNDER 37 C.F.R. § 1.132

SIR:

I, Peter Djurovich, hereby declare and state as follows:

1. I, along with Mark E. Thompson, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter disclosed and currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001), which is a continuation-in-part of U.S. patent application no. 09/274,609 (filed on March 23, 1999),

U.S. patent application no. 09/452,346 (filed on December 1, 1999), and U.S. patent application no. 09/311,126 (filed on May 13, 1999). I have read and understood each of these aforementioned U.S. patent applications. The currently pending claims in U.S. patent application no. 09/883,734 (filed on June 18, 2001) are attached hereto as Exhibit A.

2. I, along with Mark E. Thompson, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows, contributed to the conception of the subject matter currently claimed in U.S. patent application no. 09/883,734 (filed on June 18, 2001) in claims 92-94, 98, 101-103 and 140.

3. I have read and understood the abstract entitled "Optical Properties of Pt (II) Cyclometalated Complexes in Polymer Matrices, Preparation and Potential Uses in OLEDs," by Sergey Lamansky and Mark E. Thompson, dated March 21-25, 1999, which is attached hereto as Exhibit B.

4. I have read and understood the unsigned Declarations under 37 C.F.R. § 1.132 of Mark E. Thompson, Sergey Lamansky, Stephen R. Forrest, Marc A. Baldo and Paul E. Burrows (which are attached hereto collectively as Exhibit C), and I do not know of any facts or evidence which would contradict anything declared therein.

5. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that the undersigned acknowledges that any false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent that issues from U.S.

Application Serial No. 09/883,734.

Date: _____

Peter Djurovich